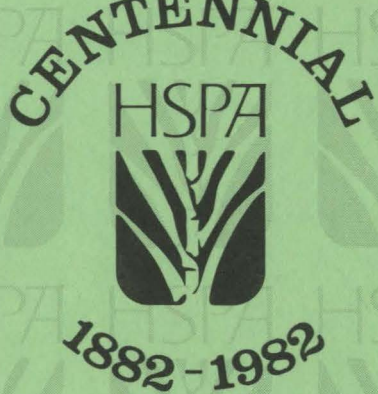
1982
HAWAIIAN SUGAR MANUAL



Hawaiian Sugar
Planters' Association

HSPA
SUGAR MANUAL 1982

A Handbook of Statistical Information
PUBLISHED BY

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CONTENTS

HAWAII'S SUGAR INDUSTRY

U.S. AND WORLD SUGAR INDUSTRY

MISCELLANEOUS

HAWAIIAN SUGAR COMPANIES

(Listed according to principal owners)

AMFAC, INC.

KEKAHA SUGAR COMPANY, LTD.
L. A. Faye, Jr., Pres. & Mgr.
Kekaha, Hawaii 96752
Phone: 337-1472

THE LIHUE PLANTATION COMPANY, LTD.
J. C. Hance, Pres. & Mgr.
Lihue, Hawaii 96766
Phone: 245-2112

OAHU SUGAR COMPANY, LTD.
W. D. Balfour, Jr., Pres. & Mgr.
Waipahu, Hawaii 96791
Phone: 677-3577

PIONEER MILL COMPANY, LTD.
R. T. Vorfeld, Pres. & Mgr.
Lahaina, Hawaii 96761
Phone: 661-0592

PUNA SUGAR COMPANY, LTD.
Hiroshi Kawazoe, Pres. & Mgr.
Keaau, Hawaii 96749
Phone: 966-9242

C. BREWER & COMPANY, LTD.

HILO COAST PROCESSING COMPANY [a]
W. B. Case, President & Chief Exec. Off.
Pepeekeo, Hawaii 96783
Phone: 963-5516; 963-6669

KA'U SUGAR COMPANY, LTD.
I. W. Bowman, Vice Pres. & Mgr.
Pahala, Hawaii 96777
Phone: 928-8311

MAUNA KEA SUGAR COMPANY, INC.[b]
J. A. Sasan, Vice Pres. & Mgr.
Papaikou, Hawaii 96781
Phone: 964-1025

OLOKELE SUGAR COMPANY, LTD.
R. B. Cushnie, Vice Pres. & Mgr.
Kaumakani, Hawaii 96747
Phone: 335-5337

WAILUKU SUGAR COMPANY [c]
D. B. Cataluna, Vice Pres. & Mgr.
Wailuku, Hawaii 96793
Phone: 244-7079

ALEXANDER & BALDWIN, INC.

HAWAIIAN COMMERCIAL & SUGAR COMPANY
R. F. Cameron, Gen. Mgr.
Puunene, Hawaii 96784
Phone: 877-0081

McBRYDE SUGAR COMPANY, LTD.
D. P. Scott, Vice Pres. & Gen. Mgr.
Eleele, Hawaii 96747
Phone: 335-5337

CASTLE & COOKE, INC.

WAIALUA SUGAR COMPANY, INC.
W. W. Paty, Jr., Pres. & Gen. Mgr.
Waialua, Hawaii 96791
Phone: 637-4520

THEO. H. DAVIES & COMPANY, LTD.

THEODAVIES HAMAKUA SUGAR COMPANY
P. E. Bouvet, Vice Pres. & Gen. Mgr.
Paauilo, Hawaii 96776
Phone: 775-7261

GAY & ROBINSON, INC.[d]

W. S. Robinson, Pres.
Makaweli, Hawaii 96769
Phone: 338-8233

[a] Sugarcane milling company cooperatively owned by United Cane Planters' Cooperative and Mauna Kea Sugar Co.

[b] Mauna Kea Sugar Company is a grower which delivers its cane to Hilo Coast Processing Co.

[c] Wailuku Sugar Company is a grower whose cane is milled by Hawaiian Commercial & Sugar Co.

[d] Gay & Robinson, Inc. is a grower whose cane is milled by Olokele Sugar Company.

HAWAIIAN SUGAR COMPANIES BY ISLANDS, WITH ACREAGE AND PRODUCTION FOR 1981
(Raw Value)

	Total Caneland Acreage	Acreage Harvested	Production (short tons)	Tons Sugar Per Harvested Acre
HAWAII				
Hilo Coast Processing Co. (Processor only)			113,601[a]	10.51
Mauna Kea Sugar Co. (Grower only)	18,152	8,200	[a]	
United Cane Planters' Coop. (Grower only) (232 member-growers)	5,369	2,603	[a]	
TheoDavies Hamakua Sugar Co.	35,531	15,209	151,445	9.96
Ka'u Sugar Co., Inc.	15,797	5,341	63,311	11.85
Puna Sugar Co., Ltd.	15,640	7,065	55,877	7.91
TOTAL HAWAII	90,489	38,418	384,234	10.00
KAUAI				
Gay & Robinson, Inc. (Grower only)	2,650	1,257	17,425[b]	13.87
Kekaha Sugar Co., Ltd.	8,264	3,949	55,410	14.03
The Lihue Plantation Co.	17,135	8,006	74,733	9.33
McBryde Sugar Co., Ltd.	12,906	6,242	56,553	9.06
Olokele Sugar Co., Ltd.	4,846	2,320	31,997	13.79
TOTAL KAUAI	45,801	21,774	236,118	10.84
MAUI				
Hawaiian Commercial & Sugar Co.	35,149	16,286	188,526	11.58
Pioneer Mill Co., Ltd.	8,386	4,129	41,198	9.99
Wailuku Sugar Co.	3,613	2,043	24,650	12.06
TOTAL MAUI	47,148	22,458	254,374	11.33
OAHU				
Oahu Sugar Co., Ltd.	18,286	8,598	102,144	11.88
Waialua Sugar Co., Inc.	14,375	6,323	70,671	11.18
TOTAL OAHU	32,661	14,921	172,815	11.58
TOTAL--ALL ISLANDS	216,099	97,571	1,047,541	10.94

[a] 89,165 tons attributed to Mauna Kea Sugar Co. 24,436 tons attributed to United Cane Planters Coop.

[b] Gay & Robinson sugarcane milled by Olokele Sugar Co., Inc.

CANE SUGAR: PRODUCTION IN HAWAII

Calendar year[a]	Tons sugar per acre	Tons cane per ton sugar	Total cane land area	CANE USED FOR SUGAR: Acreage harvested[b]	CANE USED FOR SUGAR: Average yield per acre	CANE USED FOR SUGAR: Production	SUGAR PRODUCED: Converted to 96° raw value[c]	SUGAR PRODUCED: Equivalent refined[d]	Raw Value 96° sugar made per short tons of cane	Molasses production
			Acres	Acres	Short Tons	Short Tons	Short Tons	Short Tons	Pounds	Coml. Tons
1908-1909. . .	5.14	7.42	201,641	106,127	38.2	4,050,000	545,738	510,048	270	
1909-1910. . .	4.81	7.78	209,469	110,247	37.4	4,122,000	529,940	495,282	257	
1910-1911. . .	5.16	7.94	214,312	112,796	41.0	4,623,000	582,196	544,120	252	
1911-1912. . .	5.34	7.75	216,345	113,866	41.4	4,711,000	607,863	568,109	258	
1912-1913. . .	4.90	7.99	215,741	113,548	39.1	4,445,000	556,654	520,249	250	
1913-1914. . .	5.54	8.01	217,470	112,700	44.4	5,000,000	624,165	583,345	250	
1914-1915. . .	5.75	7.96	239,800	113,164	45.8	5,184,393	650,970	608,397	251	
1915-1916. . .	5.17	8.14	246,332	115,419	42.1	4,859,424	596,703	557,679	246	
1916-1917. . .	5.57	7.98	247,476	117,468	44.4	5,220,000	654,388	611,591	251	
1917-1918. . .	4.86	8.34	246,813	119,785	40.5	4,855,804	582,192	544,117	240	
1918-1919. . .	5.07	7.81	239,844	119,679	39.6	4,744,070	607,174	567,465	256	
1919-1920. . .	4.91	7.98	247,838	114,105	39.2	4,473,498	560,379	523,730	251	
1920-1921. . .	4.83	8.53	236,510	113,056	41.2	4,657,222	546,273	510,547	235	
1921-1922. . .	4.98	8.23	228,519	124,124	41.0	5,088,062	618,457	578,010	243	
1922-1923. . .	4.85	8.23	235,134	114,182	39.9	4,559,819	554,199	517,954	243	
1923-1924. . .	6.42	7.91	231,862	111,581	50.7	5,661,000	715,918	669,097	253	
1924-1925. . .	6.47	8.06	240,597	120,632	52.2	6,297,000	781,000	730,000	248	
1925-1926. . .	6.58	8.07	237,774	122,309	53.1	6,495,686	804,644	752,020	248	
1926-1927. . .	6.68	8.41	234,809	124,542	56.1	6,992,082	831,648	777,258	238	
1927-1928. . .	7.00	8.37	240,769	131,534	58.6	7,707,330	920,887	860,661	239	
1928-1929. . .	7.16	8.05	239,858	129,131	57.7	7,447,494	925,140	864,636	248	
1929-1930. . .	7.02	8.36	242,761	133,840	58.7	7,853,439	939,287	877,858	239	
1930-1931. . .	7.43	8.33	251,533	137,037	61.9	8,485,183	1,018,047	951,467	240	
1931-1932. . .	7.57	8.38	251,876	139,744	63.4	8,865,323	1,057,303	988,155	239	
1932-1933. . .	7.34	8.05	254,563	144,959	59.1	8,566,781	1,063,605	994,045	248	
1933 (Oct. 1-Dec. 31). . .	----	----	-------	-------	----	---------	127,317	118,990	---	
1934	7.14	8.33	252,237	134,318	59.5	7,992,260	959,337	896,596	240	
1935	7.82	8.67	246,491	126,116	67.8	8,555,424	986,849	922,309	231	
1936	7.97	8.80	245,891	130,828	70.1	9,170,279	1,042,316	974,149	227	
1937	7.46	9.32	240,833	126,671	69.5	8,802,716	944,382	882,619	215	
1938	6.92	9.39	238,302	135,978	65.0	8,835,370	941,293	879,732	213	
1939	7.18	8.66	235,227	138,440	62.2	8,609,543	994,173	929,154	231	
1940	7.16	8.76	235,110	136,417	62.7	8,557,216	976,677	912,802	228	
1941	7.24	9.04	238,111	130,768	65.5	8,559,797	947,190	885,244	221	
1942	7.58	9.10	225,199	114,745	69.0	7,918,342	870,099	813,195	220	
1943	7.79	9.24	220,928	113,754	71.9	8,185,400	885,640	827,719	216	
1944	7.99	8.95	216,072	109,522	71.5	7,832,185	874,947	817,725	223	
1945	7.96	8.98	211,331	103,173	71.4	7,371,158	821,216	767,509	223	
1946	8.06	8.83	208,376	84,379	71.1	6,002,127	680,073	635,596	227	212,230
1947	7.72	9.11	211,624	113,020	70.3	7,942,216	872,187	815,146	220	285,190
1948	8.35	9.03	206,550	100,042	75.4	7,542,613	835,107	780,491	221	254,740
1949	8.76	8.44	213,354	108,794	73.9	8,045,941	955,890[e]	893,375	238	251,500
1950	8.78	8.51	220,383	109,405	74.7	8,174,821	960,961[f]	898,114	235	259,130
1951	9.09	8.51	221,212	109,494	77.4	8,477,201	955,759	930,636	235	270,585
1952	9.44	8.52	221,990	108,089	80.4	8,693,920	1,020,450	953,712	235	259,360
1953	10.15	8.19	221,542	108,337	83.1	9,003,967	1,099,316	1,027,421	244	287,480
1954	10.02	8.75	220,138	107,480	87.75	9,431,781	1,077,347	1,006,889	228	306,910
1955	10.74	8.66	218,819	106,180	92.94	9,867,978	1,140,112	1,065,525	231	295,550
1956	10.28	9.01	220,606	106,956	92.65	9,909,990	1,099,543	1,027,633	222	305,580
1957	10.16	8.71	221,336	106,742	88.51	9,447,647	1,084,646	1,013,710	230	303,700
1958	9.09	9.87	221,683	84,136	89.77	7,552,750	764,953	714,925	203	307,210
1959	8.83	9.66	222,588	110,371	85.31	9,416,225	974,632	910,891	207	330,790
1960	9.03	9.20	224,617	103,584	83.15	8,613,317	935,744	874,546	217	299,590
1961	10.09	8.78	227,027	108,320	88.58	9,595,342	1,092,481	1,021,033	228	329,960
1962	10.31	8.76	228,926	108,600	90.36	9,812,580	1,120,011	1,046,762	228	335,510
1963	10.25	9.12	231,321	107,436	93.39	10,033,969	1,100,768	1,028,777	219	322,610
1964	10.64	8.90	233,145	110,759	94.76	10,495,175	1,178,770	1,101,678	225	336,250
1965	11.11	8.82	235,576	109,600	97.97	10,737,507	1,217,667	1,138,033	227	340,190
1966	11.12	8.89	237,499	111,005	98.82	10,969,925	1,234,121	1,153,409	225	349,540
1967	10.65	9.27	239,813	111,837	98.74	11,045,949	1,191,042	1,113,148	216	359,170
1968	10.85	9.15	242,476	113,525	99.36	11,279,920	1,232,182	1,151,597	218	368,050
1969	10.44	9.17	242,216	113,232	95.73	10,839,272	1,182,414	1,105,060	218	340,330
1970	10.21	9.00	238,997	113,816	91.88	10,457,377	1,162,071	1,086,000	222	322,480
1971	10.62	8.69	232,278	115,810	92.26	10,685,019	1,229,976	1,149,510	230	330,227
1972	10.32	8.87	229,611	108,456	91.55	9,929,068	1,118,883	1,045,708	225	307,543
1973	10.43	8.55	226,580	108,189	89.15	9,645,452	1,128,529	1,054,723	234	301,500
1974	10.86	8.73	224,227	95,826	94.76	9,082,684	1,040,742	972,677	229	293,380
1975	10.53	8.57	221,426	105,125	90.23	9,485,299	1,107,199	1,034,788	233	301,335
1976	10.51	8.73	221,551	99,926	91.79	9,172,649	1,050,457	981,757	229	275,352
1977	10.68	8.70	220,729	96,770	92.95	8,994,388	1,033,739	966,132	230	284,349
1978	10.36	9.00	220,697	99,355	93.23	9,263,190	1,028,933	961,641	222	310,238
1979	10.53	9.09	218,773	100,610	95.74	9,632,135	1,059,737	990,430	220	325,843
1980	10.51	9.00	217,718	97,358	94.64	9,214,136	1,023,232	956,313	222	315,088
1981	10.74	8.43	216,099	97,573	90.51	8,831,477	1,047,541	979,032	237	311,719

[a] Until 1934 represented period Oct. 1 through Sept. 30.

[b] The average growth of a crop is from 22 to 24 months. Only a portion of the total acreage in cane is harvested each year.

[c] Converted in accordance with Sugar Regulations, Series 1, No. 1, U. S. Department of Agriculture, Agricultural Adjustment Administration, issued February 18, 1935, or Section 101(h) of the Sugar Act of 1948 or corresponding provisions of its predecessors as the case may be.

[d] 1 ton of sugar, 96° test is assumed to be equivalent to 0.9346 tons of refined.

[e] Includes 2,369 tons raw sugar produced from volunteer cane for which no acreage shown.

[f] Includes 2,690 tons raw value sugar produced from volunteer cane for which no acreage shown.

SUGAR IN HAWAII'S ECONOMY

The year 1981 was disastrous for Hawaii's sugar producers. Estimated losses totaled $83 million as a result of low sugar prices, while costs of production continued to increase. Prices of sugar to consumers and returns to domestic producers have fluctuated wildly in the eight years since expiration of the U.S. Sugar Act. Prices were high in 1974, declined drastically in 1975, 1976, and 1977, and then climbed to another high in 1980, which was followed by a precipitous drop. (See the graph at the bottom of this page.)

In the years 1976 to 1981 sugar producers in Hawaii experienced losses in all but two years -- 1979 and 1980.

Sugar production cannot survive continued losses even though returns from the sale of sugar and molasses are important to the economy of the State of Hawaii. Although sugarcane and pineapple production are not the dominant economic bases in Hawaii they used to be, they are still important sources of income to the State, representing about 75% of all agriculturally derived revenue.

In recent years, the visitor industry has become the most important economic base for Hawaii. From a very small business following World War II, tourism grew rapidly after Hawaii became a state in 1959 and the almost simultaneous introduction of the jet aircraft. In 1981 the Hawaiian economy realized an estimated $3 billion from visitor spending.

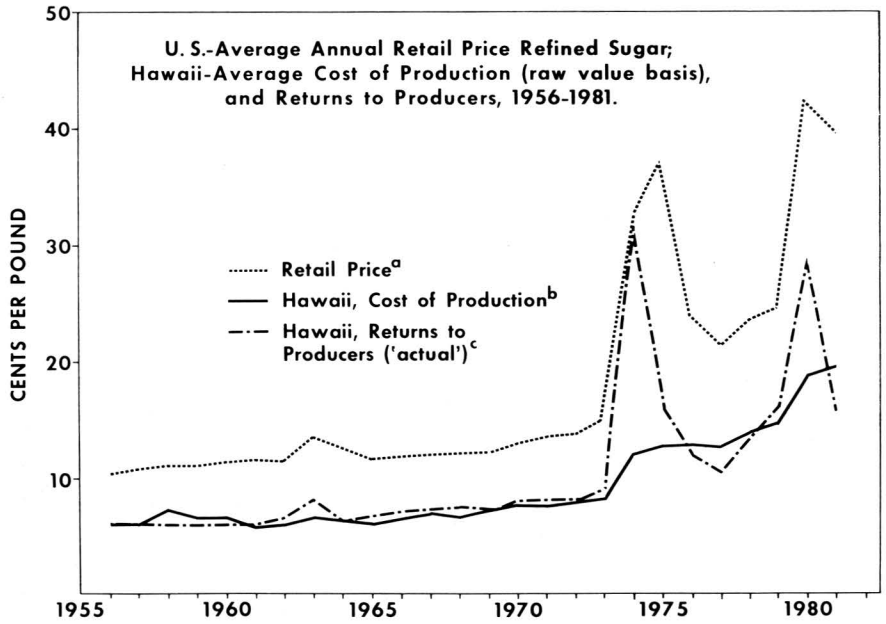
The second most important source of income is federal defense expenditures, which totaled $1.47 billion in 1981.

The value of all agricultural products in 1981 was $736 million. Returns from the sale of sugar and molasses accounted for $325 million of this total, pineapple for $220 million, and other agricultural products the remaining $191 million.

The State of Hawaii imports most of its essentials -- food, building materials, fuel, and clothing -- so income from "export" products is necessary in the State's balance of trade.

A SMALLER SUGAR MANUAL

To reduce costs because of the conditions mentioned above, the 1982 issue of the Hawaiian Sugar Manual does not contain as much information as was included in previous issues. Some descriptive information has been omitted, as have tables on sugar production in



[a] U.S. price granulated sugar at retail.
Sources: 1956-1976, USDA Agricultural Statistics.
1977-1981, USDA Sugar and Sweetener Report, May 1982.

[b] Hawaii cost of production is weighted average annual cost of producers who grow and mill sugarcane. Source: HSPA. (Note: From 1956-1971, cost of transportation of raw sugar and molasses was paid by the producers; 1972-1981 by C and H. Thus, since 1972, costs have been slightly lower than they would have been without the change, but returns have been reduced by the same amount.)

[c] Returns to Hawaii producers represents sales of sugar and molasses by C and H. Does not include compliance payments made under the U.S. Sugar Act which terminated in 1974. Such payments averaged less than 1/2 cent per pound. Does not include payments under the 1977 U.S. program which amounted to 2-3/4 cents per pound for one crop only. Source: HSPA.

other areas, import and export data, and information on the use of sugar and other sweeteners.

Readers who need information not included in this manual are referred to the Sugar and Sweetener Report, "Outlook and Situation," published quarterly by the Economic Research Service of the U.S. Department of Agriculture, to Foreign Agricultural Circulars published by the USDA, and to the Statistical Bulletins and the Sugar Year Book of the International Sugar Organization.

Should conditions improve in the future, it may be possible to resume distribution of a Hawaiian Sugar Manual that will contain more information than this one.

HSPA CENTENNIAL

On March 23, 1882, sugar growers in the then Kingdom of Hawaii met and organized the Planters' Labor and Supply Company. This organization evolved into the Hawaiian Sugar Planters' Association, with a change in name and bylaws in 1895. It is clear from the minutes of the meetings that the members intended the Hawaiian Sugar Planters' Association to be a successor organization with no break in the objectives, membership, etc., from the Planters' Labor and Supply Company.

Thus, the HSPA observes its centennial in 1982.

The Association is a voluntary, non-profit, incorporated association organized for the maintenance, advancement, improvement and protection of the sugar industry in Hawaii and the support of an experiment station. Companies engaged primarily in the business of growing sugarcane and manufacturing sugar from it are plantation members of the Association; individuals who are directly connected with the direction, management, or operation of the sugar companies are individual members.

The Association compiles information, answers inquiries, and coordinates the activities on problems of common interest and concern to its members. In addition to the Association's staff, many of these functions are carried out through standing committees, which are: Accounting, Energy, Environmental Standards, Experiment Station Advisory, Industrial Relations, Insurance, Land and Water, Legislative, Public Relations, Raw Sugar Technical, and Tax.

The Association maintains an office in Washington, D. C., where a vice president represents the member companies' interests in federal legislative actions and in the actions of federal administrative and regulatory agencies.

EXPERIMENT STATION

Since 1897 the Association's single largest program has been its Experiment Station, which conducts research on sugarcane for the benefit of all sugarcane growers and processors in Hawaii. Experiment Station staff members conduct research and development on cultural practices, on developing new sugarcane varieties, on the control of pests such as insects, diseases, weeds and rats, on sugarcane factory processes and factory control, on sugar recovery from milling sugarcane, on raw sugar quality, on the design and engineering of equipment, and do some research on the basic physiology and biochemistry of the sugarcane plant.

The Experiment Station provides services to its member companies, such as routine analyses of raw sugar and molasses; plant and soil analyses to determine fertilizer needs; repair and calibration of sugar factory instruments; field, factory, and factory laboratory audits; and short courses to train employees of member companies.

In addition to its headquarters offices and laboratories in Aiea on Oahu, the Experiment Station has substations on each of the four islands on which sugarcane is grown -- Oahu, Maui, Kauai, and Hawaii. One of its principal substations on the Island of Oahu is specifically for the purpose of maintaining parent varieties and for crossing them to develop improved varieties. The Experiment Station also has a large and complete library, with a collection of reference books and periodicals on sugarcane growing and milling, as well as a comprehensive collection of journals and reference books on agriculture, chemistry, and engineering.

CALIFORNIA AND HAWAIIAN SUGAR COMPANY

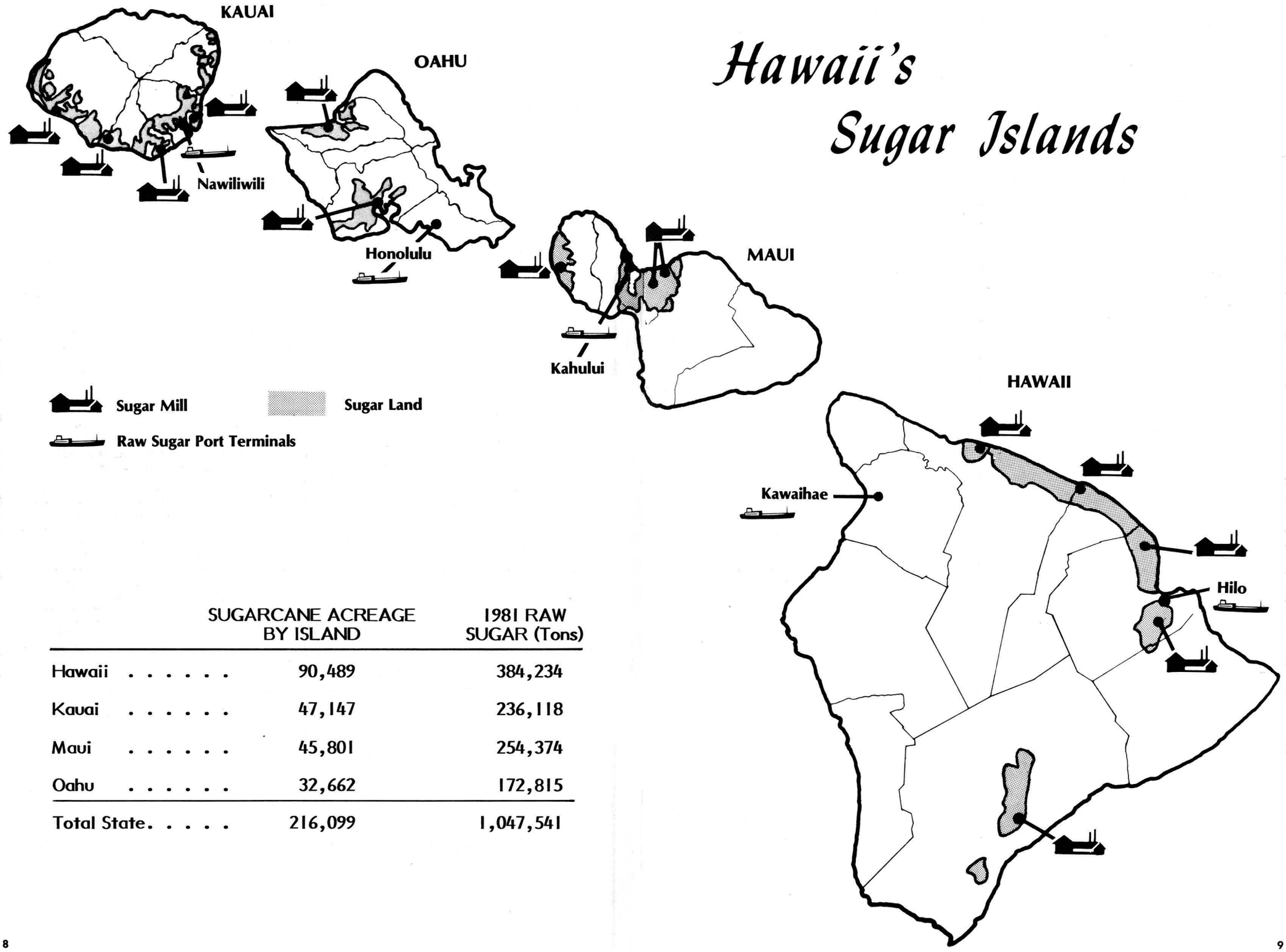
The California and Hawaiian Sugar Company is an agricultural cooperative marketing association, owned by its 14 member sugar-producing companies in Hawaii. Best known by its brand name, C and H, this company has refineries at Crockett, California, and Aiea, Hawaii. It markets all raw sugar and molasses produced in Hawaii and, except for some raw sugar which is sold to other refiners, refines, packages, and markets as refined sugar the output of Hawaii's sugar factories. In addition to serving as the refining and marketing agency for the sugar companies, it also serves the 265 independent sugarcane farmers in Hawaii.

C and H brand sugar is sold primarily in the western part of the United States from the Pacific Coast to Mississippi River Valley plus Hawaii and Alaska. C and H brand sugar is the leading brand in the region.

Over the past decade, annual C and H sales have averaged about $473 million and have returned an average of about $346 million annually to Hawaii's producers. The company employs approximately 1,500 persons in mainland operations and has about 75 employees at the Aiea refinery. Payroll totals almost $42 million annually.

John B. Bunker is president and chief executive officer of C and H. Company headquarters are at One California Street, San Francisco, CA 94111.

Hawaii's Sugar Islands



	SUGARCANE ACREAGE BY ISLAND	1981 RAW SUGAR (Tons)
Hawaii	90,489	384,234
Kauai	47,147	236,118
Maui	45,801	254,374
Oahu	32,662	172,815
Total State.	216,099	1,047,541

WAGES, HOURS & WORKING CONDITIONS

Hawaii's sugar workers, both field and factory, are members of the International Longshoremen's and Warehousemen's Union (ILWU). A contract negotiated with the ILWU, February 1, 1981, was extended to Jan. 31, 1983. Under this contract, the minimum pay (Grade 1) is currently $6.39 per hour increasing to $6.70/hr Aug. 1, 1982. The rate for Grade 11 is $9.055 per hour, increasing to $9.49/hr Aug. 1, 1982.

Unlike some farming areas where crops are seasonal, Hawaii's sugar industry provides year-round, long-term employment.

In 1981 the payroll for all Hawaii's sugar workers amounted to $153,286,500.

DAILY AVERAGE EARNINGS IN 1981

Wages	$ 61.51
Employee Benefits	27.71
Total	$ 89.22

EMPLOYEE BENEFITS

Year-round employees receive up to four weeks vacation with pay, 10 paid holidays a year; paid sick leave for up to 54 days plus a temporary disability supplement for extended illness, a medical plan, a family dental care plan, retirement pensions, severance pay, and many other benefits.

APPROXIMATE EMPLOYMENT BY OCCUPATION AT SUGAR COMPANIES

Factory	1000
Field	2030
Motive Equipment	2300
Construction & Surveying	180
Clerical	280
Trades	1285
Supervisors	1075
Total	8600

AVERAGE RAW SUGAR PRICE, AVERAGE DAILY EARNINGS FOR NON-SUPERVISORY EMPLOYEES, AVERAGE NUMBER OF ADULT HOURLY-RATED EMPLOYEES, AND TOTAL MAN-DAYS ALL HOURLY-RATED EMPLOYEES ON HAWAIIAN SUGAR PLANTATIONS

	Average New York Raw Sugar price, cents per pound (Hawaiian Basis)[a]	Average Daily Earnings[b]	Adult Hourly-Rated Employees[c]	Total Man-Days Hourly-Rated Employees
1940	2.78	$ 2.18	35,062	9,994,863
1941	3.39	2.48	30,646	8,870,704
1942	3.74	2.90	26,371	7,923,641
1943	3.74	3.59	23,847	7,562,690
1944	3.74	3.91	22,543	7,062,227
1945	3.75	5.10	20,806	6,350,489
1946	4.59	5.28	22,131[d]	5,247,294[d]
1947	6.22	7.63	22,743	6,443,424
1948	5.56	8.02	21,381	5,820,806
1949	5.81	8.04	20,258	5,437,839
1950	5.93	8.30	19,340	5,069,682
1951	6.06	9.00	18,654	4,894,004
1952	6.26	9.70	18,193	4,653,898
1953	6.29	10.20	17,589	4,386,554
1954	6.09	10.58	16,773	4,163,264
1955	5.95	10.62	15,935	3,896,761
1956	6.09	10.73	15,065	3,646,860
1957	6.25	11.20	14,085	3,457,428
1958	6.27	12.78	13,304[e]	2,333,527[e]
1959	6.24	12.84	12,755	3,082,207
1960	6.31	13.18	12,111	2,917,459
1961	6.30	14.11	11,660	2,787,714
1962	6.45	14.96	10,960	2,675,974
1963	8.20	16.68	10,722	2,582,706
1964	6.90	17.60	10,516	2,593,094
1965	6.75	18.40	10,346	2,505,839
1966	6.99	19.76	10,040	2,447,554
1967	7.28	21.35	9,756	2,346,197
1968	7.52	21.62	9,481	2,282,654
1969	7.75	23.26	9,213[f]	2,066,244[f]
1970	8.08	24.24	8,908	2,139,183
1971	8.52	26.08	8,610	2,077,011
1972	9.10	29.09	8,127	1,934,563
1973	10.30	30.86	7,900	1,897,369
1974	29.43	34.41	7,700[g]	1,744,346[g]
1975	22.49	37.34	7,800	1,937,973
1976	13.31	43.12	7,500	1,854,272
1977	11.11[i]	43.92	7,200[h]	1,660,298[h]
1978	13.74	47.06	7,200	1,771,530
1979	15.20[j]	50.49	7,065	1,762,838
1980	30.18	56.72	7,076	1,793,237
1981	19.74	61.51	7,282	1,806,020

[a] Hawaiian basis is the average New York raw sugar price computed over all the days in the year. The New York price is computed for days the New York market is operating. Local sugar land leases are based on the Hawaiian basis rather than the New York basis.

[b] Cash wage only. Does not include "employee benefits."

[c] Prior to 1947 included only male adults.

[d] 1946: industry-wide strike, 2 1/2 months.

[e] 1958: industry-wide strike, 4 months.

[f] 1969: industry-wide strike, 5 weeks.

[g] 1974: industry-wide strike, 6 weeks

[h] 1977: industry-wide strike, 3 weeks.

[i] New York spot price discontinued Nov. 2, 1977; after that date based on Clearing Association settlement prices.

[j] N. Y. spot price reinstituted on Aug. 20, 1979.

U. S. SUGAR SUPPLY AND USE

The sweetener requirements of the United States are met from several sources. Twenty states produce sugar from sugarcane or sugar beets and there are at least 11 states that produce sugars from corn.

In 1981 the U.S. produced about 63% of its sweetener requirements, the balance being made up by imports from other countries of raw sugar which was refined in the U.S.

Of the approximately 6.12 million tons of sugar produced in the U.S. during 1981-82, approximately 3.29 million tons were from beets and 2.83 million tons from sugarcane.

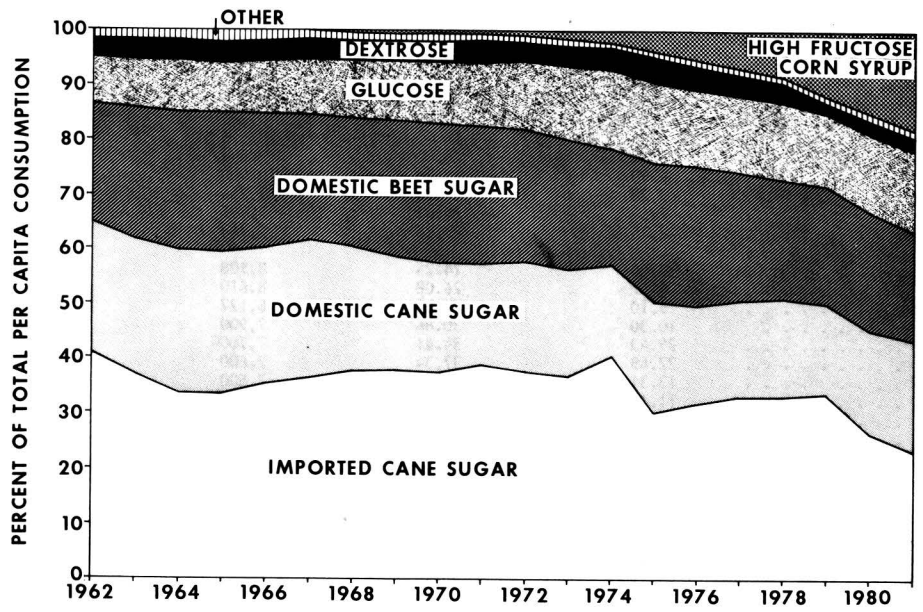
A total of 5.15 million tons of corn sweeteners were used for food in the U.S. in 1981, of which 2.65 million tons (18 percent of total per capita sweetener consumption) were High Fructose Corn Syrup (HFCS). (See the graph at the bottom of this page.)

During 1981, 5.01 million tons of sugar was imported into the U.S., compared to 4.48 million tons in 1980 and 5.03 million tons in 1979. (See table on page 13.)

Total domestic disappearance of sugar for domestic use in 1981 was 9,970,000 tons and an additional 1,048,000 tons were exported.

Of the sugar used in the United States, approximately 5.57 million tons was used in products such as soft drinks, baked goods, and dairy products. Most of the balance was used at home and in meals served in restaurants and institutions.

Per capita sugar consumption in the United States has decreased from approximately 100 pounds, which prevailed for many years, to 79.5 pounds in 1981. This does not reflect a decrease in total nutritive sweetener consumption, which has remained at about 125 pounds per capita for the past 15 years. The difference between the 79.5 pounds per capita sugar consumption and the total is made up mainly of corn sweeteners, including HFCS, glucose, and dextrose. (See table on page 14.)



UNITED STATES PER CAPITA CALORIC SWEETENERS CONSUMPTION
(Sources as per cent of total, 1964-81.)

Based on data from USDA Sugar and Sweetener Report, 7(1), February 1982.

TOTAL FOREIGN IMPORTS INTO U.S.A. (Mainland) BY COUNTRIES OF ORIGIN: 1978 THROUGH 1981

Country	Calendar year 1978	1979	1980	1981
	1,000 short tons, raw value[a]			
WESTERN HEMISPHERE:				
Caribbean Islands:				
Dominican Republic	734	817	615	761
Haiti	6	11	10	--
West Indies	184	212	214	30
Other	--	--	--	--
Total[b]	924	1,040	839	791
Central America:				
Belize (British Honduras)	87	58	72	56
Costa Rica	78	80	68	82
El Salvador	130	161	41	46
Guatemala	156	171	219	224
Honduras	18	65	89	95
Nicaragua	108	122	63	80
Panama	123	157	156	104
Other	--	--	11	--
Total[b]	700	814	719	687
North America:				
Canada	98	90	1	3
Mexico	53	60	(c)	(c)
Total[b]	151	150	1	3
South America:				
Argentina	271	235	197	444
Bolivia	62	89	73	8
Brazil	601	1,262	846	1,099
Colombia	113	26	214	166
Ecuador	37	82	73	55
Peru	225	189	52	--
Other	8	--	7	146
Total[b]	1,318	1,883	1,462	1,863
Total Western Hemisphere[b]	3,093	3,887	3,021	3,344
EASTERN HEMISPHERE:				
Australia	165	108	351	715
China, Republic of	57	28	--	(c)
Fiji Islands	51	130	50	24
France	43	--	--	(c)
Germany, West	17	(c)	(c)	--
India	(c)	(c)	(c)	(c)
Malagasy, Republic of	14	10	20	12
Malawi	37	36	60	88
Mauritius	112	116	55	--
Mozambique	13	98	88	40
South Africa	60	89	164	--
Swaziland	82	102	142	192
Thailand	65	9	66	262
Other	39	(c)	57	98
Total Eastern Hemisphere excluding Philippines[b]	755	726	1,053	1,431
Philippines	833	413	409	239
Total Eastern Hemisphere[b]	1,588	1,139	1,462	1,670
TOTAL U.S. IMPORTS[b]	4,683	5,027	4,484	5,014

[a] USDA data are reported by refiners for sugar certified and adjusted to a 96° polarity and actually received by refiners.

[b] May not add due to rounding.

[c] Less than 0.5.

Source: U.S. Dept of Agriculture Sugar and Sweetener Report, Vol. 7 (2) May 1982.

CONTINENTAL U. S. SUGAR CONSUMPTION

Five Year Intervals—1873-1943

Year	Total Sugar Consumption[a] (Short tons, raw value)	Per Capita Consumption (Pounds, refined value)
1873	897,072	40.2
1878	926,929	36.4
1883	1,402,577	48.8
1888	1,746,385	54.4
1893	2,283,985	63.8
1898	2,400,278	61.1
1903	3,055,492	70.5
1908	3,817,849	80.1
1913	4,485,778	86.9
1918	4,189,134	75.6
1923	5,729,172	96.0
1928	6,658,400	103.8
1933	6,613,200	99.7
1938	6,597,200	96.3
1943	6,725,720	94.2

Yearly Intervals--1944-1981

Year	Total Sugar Consumption[a] (Short tons, raw value)	Per Capita Consumption (Pounds, refined value)
1944	6,170,000	89.5
1945	5,046,000	73.9
1946	5,552,000	75.1
1947	7,357,000	95.5
1948	7,263,000	94.0
1949	7,451,000	95.8
1950	8,217,000	100.8
1951	7,552,000	93.8
1952	8,008,000	98.2
1953	8,354,000	97.9
1954	8,106,000	96.3
1955	8,350,000	97.5
1956	8,962,000	98.4
1957	8,708,000	95.0
1958	9,017,000	96.8
1959	9,135,000	96.4
1960	9,434,000	97.6
1961	9,612,000	97.7
1962	9,709,000	97.2
1963	9,856,000	97.3
1964	9,938,000	96.8
1965	10,080,000	97.0
1966	10,235,000	97.3
1967	10,474,000	98.5
1968	10,656,000	99.2
1969	10,950,000	101.0
1970	11,163,000	101.8
1971	11,345,000	102.4
1972	11,487,000	102.8
1973	11,429,000	101.5
1974	10,946,000	96.6
1975	9,304,000	90.2
1976	10,895,000	94.7
1977	11,100,000	95.7
1978	10,889,000	93.1
1979	10,761,000	91.1
1980	10,189,000	83.6
1981[b]	9,770,000	79.5

[a] Theoretical consumption. (Actual deliveries for consumption, and includes deliveries for U.S. military forces at home and abroad.)

[b] Estimated.

Source: 1873-1943--Lamborn Sugar Market Reports.
1944-1977--U.S. Dept. of Agriculture Agricultural Statistics, 1958, 1968, 1978.
1978-1979--U.S. Dept. of Agriculture Sugar and Sweetener Report, Vol. 6 (1), Feb. 1981.
1980-1981--U.S. Dept. of Agriculture Sugar and Sweetener Report, Vol. 7 (2), May 1982.

SUGAR PRICES

During the life of the U.S. Sugar Act, sugar prices remained remarkably stable (see table on page 11 and graphs on pages 6 and 15).

With the termination of the Sugar Act in 1974, and under the influence of worldwide market conditions, sugar prices increased dramatically in 1974. They decreased almost as rapidly in 1975 and were relatively stable until 1979 and 1980, when a new peak was reached.

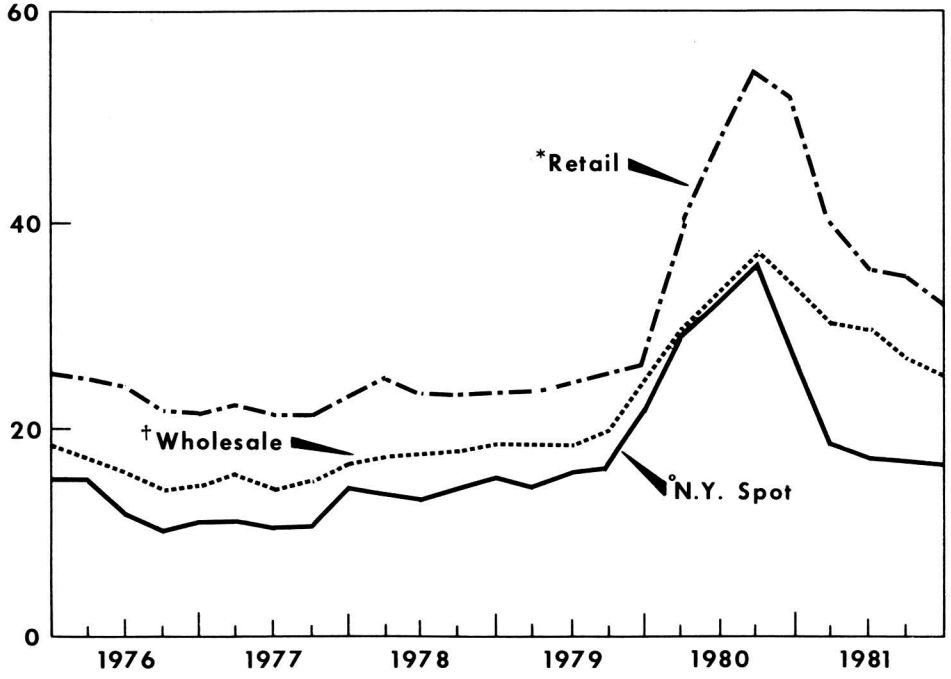
One of the most generally used indicators of U.S. raw sugar prices is the "New York Spot Price." The graphs on pages 6 and 15 show the relationship of this price to the wholesale and retail prices of sugar and show its relationship to returns to Hawaiian producers and to their cost of production.

WORLD SUGAR

The world sugar situation is currently one of over-production and large stocks. Total production in 1981-82 is estimated to be 99 million metric tons raw value, while consumption is estimated at 90 million tons. This will add to already large carryover stocks. Most sugar is used in the country where it is produced or is exported to other countries under long-term contracts. Sugar not so committed is sold on what is called the "world market" for whatever price can be obtained. Temporarily high prices in this market are invariably followed by periods of low prices. In October 1980 the world price for raw sugar was 40.5 cents per pound but by June 1982 was only 7.24 cents. Current world prices are below cost of production even for countries with the lowest costs.

The United States was without an effective sugar program from 1974 until early 1982. During that period the U.S. price to domestic producers was essentially the world price, which fell well below cost of production. In late 1981 Congress included a sugar price support program in the general farm bill and in May 1982 the President established country-by-country quotas on imports. These actions resulted in improved prices to U.S. producers, giving them the same kind of insulation against the volatile world price that producers in other countries have.

U.S. SUGAR PRICES
¢ per lb.



* Granulated.

° Bulk raw sugar. For 4th quarter 1977 through 3rd quarter 1979, derived from London daily price, Caribbean basis, plus applicable fees and freight.

† Bulk, dry beet sugar, F.O.B. plant in Colorado.

Source: 1972-77: Adapted from Fig. S-6, USDA Sugar and Sweetener Report, Vol. 3 pg. 17, February 1978.
1978: Adapted from Fig. S-5, USDA Sugar and Sweetener Report, Vol 4, pg. 20, May 1979.
1980: Adapted from "U.S. Sugar Prices" figure, USDA Sugar and Sweetener Report, Vol. 6(2), pg. 10, May 1981.
1981: Adapted from "U.S. Sugar Prices" figure, USDA Sugar and Sweetener Report, Vol. 7(1), pg. 7, February 1982.

MISCELLANEOUS

GLOSSARY

BAGASSE: Fibrous residue remaining after sugarcane has been milled to extract the sugar-containing juices.

BLACKSTRAP MOLASSES: The final product remaining after all the commercially recoverable sucrose has been removed from the juices expressed from cane. It is a dark colored, heavy, viscous liquid.

BRIX: The measure of density of a solution containing sucrose as determined by a hydrometer.

CALORIE: Unit expressing the energy-producing value of food. A pound of sugar contains 1,790 calories. A standard teaspoon contains 18.

DEXTROSE: A widely occurring crystallizable, simple sugar which contains 6 carbon atoms in contrast to the 12 found in sucrose. It is obtained in commercial quantities by the action of acid on cornstarch. It is less sweet than sucrose.

FRUCTOSE: An alternate chemical name for levulose.

GLUCOSE: (1) An alternate chemical name for dextrose. (2) A name given to corn syrups which are obtained by the action of acids and/or enzymes on cornstarch. Commercial corn syrups are nearly colorless and very viscous. They consist principally of dextrose and another sugar, maltose, combined with gummy organic materials known as dextrins, in water solution.

GUR: Cane juice, concentrated nearly to dryness by boiling over an open fire, without centrifuging and with no purification than by skimming. This ancient process is still used for producing a large share of the sugar consumed in India and some other countries. The crude product is high in glucose and correspondingly low in sucrose.

HIGH FRUCTOSE CORN SYRUP: High fructose corn syrups (HFCS) are produced by the enzymatic conversion of a portion of the glucose in corn syrup to fructose. Composition of presently available products ranges from 7 to 55% glucose and 42 to 90% fructose on dry solids, the balance being other saccharides. Dry solids average about 71% on total weight. The product is roughly comparable to invert syrup made from sucrose in terms of sweetness and physical properties.

HIGH TEST MOLASSES: A concentrated, clarified cane juice which has been inverted (usually about 2/3) to prevent sucrose from crystallizing at the high concentrations normally employed.

INVERT OR INVERT SUGAR: The mixture of equal parts of dextrose and levulose produced by the action of acid or enzymes on solutions of sucrose.

LEVULOSE: A highly soluble, simple sugar, also containing 6 carbon atoms, it is crystallized with great difficulty, is generally considered sweeter than sucrose, and is used in considerable quantities in combination with dextrose and sucrose in invert sugars.

LIQUID SUGAR: A concentrated solution of refined sucrose or of a mixture of sucrose and invert sugar.

MASSECUITE: A dense mass of sugar crystals mixed with mother liquor, obtained by evaporation.

MOLASSES: The mother liquor separated from sugar crystals in massecuite.

NON-CENTRIFUGAL SUGARS: Crude sugars made from the sugarcane juice by evaporation and draining off the molasses. Among local names are "muscovado," "panocha," and "papelon."

PLANT CROP: The sugarcane crop started with seed pieces (setts).

POLARIZATION: The value (designated as "pol") determined by direct or single polarization of a normal weight solution in a saccharimeter or polariscope. (Based on Spencer and Meade.)

RATOON: Second and subsequent crops grown from the root systems of previous plantings of sugarcane. Usually one or more ratoon crops are harvested before the fields are plowed and replanted.

RAW SUGAR: The impure centrifugal sugar of commerce, a light brown crystalline material, generally containing between 96 and 99% sucrose, plus various impurities and moisture. Other names are "panocha" and "demarra."

SOFT SUGARS: Highly refined, dark-colored, molasses-flavored sugars which are frequently called brown sugars. They contain significant amounts of non-sucrose.

SUCROSE: A sweet crystallizable, colorless sugar which constitutes the principal sugar of commerce. Refined cane and beet sugars are essentially 100% sucrose. Under certain conditions sucrose breaks down to dextrose and levulose.

SYRUP: Concentrated clarified cane juice before crystallization.

TEL QUEL: Literally, such as (it is). When used describing sugar it means "as made," hence of a polarization usually varying among mills and producing areas.

TURBINADO: Direct consumption raw sugar of high polarization which must be dried in a granulator to a very low moisture content.


HSPA